

AMENDMENTS TO THE CLAIMS:

Please cancel claims 1-21 without prejudice or disclaimer and amend the claims as follows:

1.-21. (Canceled)

22. (New) A recording head, comprising:

a nozzle plate having nozzles for discharging ink droplets arranged in a row;

a plurality of pressure generating chambers communicating to the nozzles, the plurality of pressure generating chambers including a first pressure generating chamber and a second pressure generating chamber;

a diaphragm formed on one face of the pressure generating chamber;

a piezoelectric element for displacing the diaphragm, wherein the first pressure generating chamber is disposed on one side of the nozzles arranged in the row, and a second pressure generating chamber is disposed on the other side, and the first and second pressure generating chambers are opposed to each other across the nozzles arranged in the row so that the central lines of the first and second pressure generating chambers are almost coincident; and

a communication flow passage leading from the pressure generating chamber to the nozzles,

wherein the communication flow passage is narrower than the width of the pressure chamber, and wherein a part of the communication flow passage is located outside a side wall face of the pressure generating chamber.

23. (New) A recording head comprising:

a nozzle plate having nozzles for discharging ink droplets arranged in a row;
a plurality of pressure generating chambers communicating to the nozzles, the plurality of pressure generating chambers including a first pressure generating chamber and a second pressure generating chamber;

a diaphragm formed on one face of the pressure generating chamber; and

a piezoelectric element for displacing the diaphragm,

wherein the first pressure generating chamber is disposed on one side of the nozzles arranged in the row, and a second pressure generating chamber is disposed on the other side,

wherein the first and second pressure generating chambers are opposed to each other across the nozzles arranged in the row so that the central lines of the first and second pressure generating chambers are almost coincident, and

wherein the rigidity of a partition wall between the adjacent nozzles and the communication flow passage is smaller than the rigidity of a partition wall between the adjacent pressure generating chambers.

24. (New) A recording head comprising:

a nozzle plate having nozzles for discharging ink droplets arranged in a row;
a plurality of pressure generating chambers communicating to the nozzles, the plurality of pressure generating chambers including a first pressure generating chamber and a second pressure generating chamber;

a diaphragm formed on one face of the pressure generating chamber; and

a piezoelectric element for displacing the diaphragm;

wherein the first pressure generating chamber is disposed on one side of the nozzles arranged in the row, and a second pressure generating chamber is disposed on the other side, and the first and second pressure generating chambers are opposed to each other across the nozzles arranged in the row so that the central lines of the first and second pressure generating chambers are almost coincident,

wherein the inkjet recording head comprises a line scan head which has the nozzles arranged in the row and which is fixed while a printing is performed, and

wherein the total number of nozzles N , the distance between nozzles N_p (inch), the printing resolution D_p (dots/inch), and the width of the line scan head W_h (inch) satisfy following formula:

$$W_h < \sin\{\arccos(N_p/D_p)\} \times \{(1/D_p) \times (N-1) + 1/N_p\}.$$

25. (New) The inkjet recording head according to claim 22, wherein C_p is chosen to be about double N_p , where the distance between the central lines of the first and second pressure generating chambers is C_p and the distance between the nozzles is N_p .

26. (New) The inkjet recording head according to claim 22, wherein the piezoelectric element has a piezoelectric material and an electrically conductive material laminated alternately, and

wherein one end of the piezoelectric element is fixed to at least one base board having electrical conductivity.

27. (New) The inkjet recording head according to claim 22, wherein the piezoelectric element is fixed to the base board and then divided like a comb.

28. (New) The inkjet recording head according to claim 22, wherein the pressure generating chamber is formed of silicon by etching.

29. (New) The inkjet recording head according to claim 23, wherein C_p is chosen to be about double N_p , where the distance between the central lines of the first and second pressure generating chambers is C_p and the distance between the nozzles is N_p .

30. (New) The inkjet recording head according to claim 23, wherein the piezoelectric element includes a piezoelectric material and an electrically conductive material laminated alternately, and one end of the piezoelectric element is fixed to at least one base board having electrical conductivity.

31. (New) The inkjet recording head according to claim 23, wherein the piezoelectric element is fixed to the base board and then divided like a comb.

32. (New) The inkjet recording head according to claim 23, wherein the pressure generating chamber is formed of silicon by etching.

33. (New) The inkjet recording head according to claim 24, wherein C_p is chosen to be about double N_p , where the distance between the central lines of the first and second pressure generating chambers is C_p and the distance between the nozzles is N_p .

34. (New) The inkjet recording head according to claim 24, wherein the piezoelectric element has a piezoelectric material and an electrically conductive material laminated alternately, and

wherein one end of the piezoelectric element is fixed to at least one base board having electrical conductivity.

35. (New) The inkjet recording head according to claim 24, wherein the piezoelectric element is fixed to the base board and then divided like a comb.

36. (New) The inkjet recording head according to claim 24, wherein the pressure generating chamber is formed of silicon by etching.

37. (New) A inkjet recording apparatus comprising:
a nozzle plate having nozzles for discharging ink droplets arranged in a row;
a plurality of pressure generating chambers communicating to the nozzles, the plurality of pressure generating chambers including a first pressure generating chamber and a second pressure generating chamber;
a diaphragm formed on one face of the pressure generating chamber;
a common ink chamber for supplying the ink via an ink supply passage to the plurality of pressure generating chambers; and
a piezoelectric element for displacing the diaphragm,
wherein the first pressure generating chamber is disposed on one side of the nozzles arranged in the row, and a second pressure generating chamber is disposed on the other side,
wherein the first and second pressure generating chambers are opposed to each other

across the nozzles arranged in the row so that the central lines of the first and second pressure generating chambers are almost coincident,

wherein the nozzle plate, the plurality of pressure generating chambers, the diaphragm, the common ink chamber and the piezoelectric element is accommodated by a line scan head that is fixed while a printing is performed, and

wherein the total number of nozzles N , the distance between nozzles N_p (inch), the printing resolution D_p (dots/inch), and the width of the line scan head W_h (inch) satisfy following formula:

$$W_h < \sin\{\arccos(N_p/D_p)\} \times \{(1/D_p) \times (N-1) + 1/N_p\}.$$